**NASA DEVELOP National Program**

**** BLM at Idaho State University GIS TReC

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**Short Title: Idaho Disasters III**

**Updated Abstract**

Wildfires, coupled with the presence of invasive plant species, are primary drivers of change in semi-arid savanna ecosystems. These wildfires disrupt ecosystems, human localities, critical habitats of the endangered Greater Sage Grouse (*Centrocercus urophasianus)*, and create opportunities for invasive species to expand their populations. Wildland fire regimes have changed dramatically due to *Bromus tectorum* (cheatgrass), an invasive annual grass, which has effectively lengthened the wildfire season and increased fire frequency. Cheatgrass*’* ability to quickly establish in disturbed areas creates a positive feedback cycle with wildland fire, resulting in landscapes that burn more frequently and becomes increasingly dominated by this invasive plant. This creates a need for more advanced landscape and wildfire monitoring tools that can identify the prominence of invasive plants in order to provide better information regarding fire susceptibility. Currently, there are no active cheatgrass management plans in Idaho due to the overwhelming capabilities of the plant to dominate landscapes. However, effective management of this species requires knowledge of its distribution in order to evaluate wildfire regimes and prevent cheatgrass expansion in recently disturbed landscapes. This study used spring/summer 2013, 2014, and 2015 imagery from Landsat 8 Operational Land Imagery (OLI) and decision-tree-based classification to create a vegetation distribution map of SE Idaho that identified cheatgrass and was subsequently used to create a fire susceptibility map for the study area. These results enhance the Bureau of Land Management’s and Idaho Department of Land’s decision making with respect to resource allocations and supports post-fire rehabilitation planning and fuel reduction programs.